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PATENT APPLICATION TRANSMITTAL LETTER

Docket Number (Optional)

Case 2

To the Commissioner of Patents and Trademarks:

Transmitted herewith for filing is the patent application of \_\_\_\_\_

Jerrell L. Whited

entitled Seed Treater

Enclosed are:

- ☒ 6 sheets of drawings
- ☐ an assignment of the invention to \_\_\_\_\_
- ☒ executed declaration of the inventor \_\_\_\_\_
- ☐ a certified copy of a \_\_\_\_\_ application.
- ☐ associate power of attorney.
- ☒ a verified statement to establish small entity status under 37 CFR 1.9 and 1.27.
- ☐ information disclosure statement
- ☐ preliminary amendment
- ☐ other: \_\_\_\_\_

CLAIMS AS FILED

	NUMBER FILED	NUMBER EXTRA	RATE	FEE
BASIC FEE				
TOTAL CLAIMS	20 - 20 =	* 0	x \$20	----
INDEPENDENT CLAIMS	3 - 3 =	* 0	x \$60	----
MULTIPLE DEPENDENT CLAIM PRESENT			\$200	
* NUMBER EXTRA MUST BE ZERO OR LARGER			TOTAL	\$ 690.
If applicant has small entity status under 37 CFR 1.9 and 1.27, then divide total fee by 2, and enter amount here.			SMALL ENTITY TOTAL	\$ 345/

- ☒ A check in the amount of \$ 345.00 to cover the filing fee is enclosed.
- ☐ The Commissioner is hereby authorized to charge and credit Deposit Account No. \_\_\_\_\_ as described below. I have enclosed a duplicate copy of this sheet.
  - ☐ Charge the amount of \$ \_\_\_\_\_ as filing fee.
  - ☐ Credit any overpayment.
  - ☐ Charge any additional filing fees required under 37 CFR 1.16 and 1.17.
  - ☐ Charge the issue fee set in 37 CFR 1.18 at the mailing of the Notice of Allowance, pursuant to 37 CFR 1.311(b).

8-11-00

Date

Signature

Paul H. Gallagher

See mailing certificate on reverse side.

**VERIFIED STATEMENT CLAIMING SMALL ENTITY STATUS**  
**(37 CFR 1.9(f) & 1.27(b))--INDEPENDENT INVENTOR**

Docket Number (Optional)

Case 2

Applicant or Patentee: Jerrel Lee WhitedSerial or Patent No.: ---Filed or Issued: HerewithTitle: Seed Treater

As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees to the Patent and Trademark Office described in:

- ☒ the specification filed herewith with title as listed above.
- ☐ the application identified above.
- ☐ the patent identified above.

I have not assigned, granted, conveyed or licensed and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

- ☒ No such person, concern, or organization exists.
- ☐ Each such person, concern or organization is listed below.

Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Jerrel Lee Whited

NAME OF INVENTOR

Signature of inventor

Date

NAME OF INVENTOR

Signature of inventor

Date

NAME OF INVENTOR

Signature of inventor

Date

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PFO

Jerrel L. Whited  
Case 2

## Seed Treater

### Field of the Invention

The invention resides in the general field of chemically treating seeds or grains as in a grain elevator. Heretofore, the seeds were treated in an upper floor of the elevator, utilizing stationary facilities for treating and mixing the various seeds. In such an arrangement, the various seeds, i.e. different kinds, e.g. wheat, oats, corn, etc., were contained in bins in the elevator and various devices were utilized for transporting the seeds to a common outlet, and in doing so, they were mixed in various selected proportions, and liquid chemicals were applied to the seeds. Such an arrangement was cumbersome, slow, and required much labor to produce the desired results. In a following step, a truck was driven into the elevator, below the place of mixing, and after the mixing and other treatment steps were performed, the resulting seed mixture was fed into the truck.

004-3307-031400

## Summary of the Present Invention

The seed treater of the present invention is a self-contained unit, that is secured to the structure of the elevator such as being bolted on the ceiling at the first floor, and the truck is driven under the device. The seeds are introduced into the treater from above, on the second floor of the elevator, and are mixed and coated in the treater, as they are passing therethrough.

The treater of the present invention is capable of on-demand receiving seeds of various kinds for blending from bins on the second floor where they were previously stored.

The treater is capable of being fed by instrumentalities on the second floor, such as by conveyor, belt, screws, chutes from hopper bins.

The device of the present invention will function as an on-demand apparatus in filling orders, both as to chemicals and seed blending, in that upon initiating an order for treated seed, the ingredients, mainly the different kinds of seeds for mixing, and chemicals, are introduced into the device independently, and they are thoroughly mixed while passing through the device, flowing into the truck uninterruptedly, i.e. upon selecting the ingredients to be put in the seed combination, the device is made to operate, and continues until the order is completed.

Other features and advantages are that the device is relatively small in size, it is relatively inexpensive to manufacture, and it is convenient to mount in position for ingredients to be mixed and delivered to the truck.

5 Another great advantage is, although relatively small and of inexpensive construction, the device will treat great amounts of seeds at an extremely rapid rate.

Another important feature is that the device, because of its compact and light weight construction, can be easily mounted  
10 in operable position.

#### Brief Descriptions of the Figures of the Drawings

Fig. 1 is a perspective overall view of the background in which the treater is utilized, and including the seed treater  
15 itself.

Fig. 2 is a diagrammatic view of the grain feeding instrumentalities on the second floor of the elevator leading to the seed treater.

Fig. 3 is a perspective view of the top flange on the seed  
20 treater, and the adjacent part of the interior.

Fig. 4 is a sectional view taken approximately at line 4-4 of Fig. 3, showing the upper end of the device.

Fig. 5 is a vertical axial sectional view of the whole seed treater.

Fig. 6 is an exterior view of the seed treater with an access door in open position.

Fig. 7 is a perspective view of the upper bearing support.

Fig. 8 is a view taken at line 8-8 of Fig. 7.

5 Fig. 9 is a side view of the applicator from inside the surrounding wall.

Fig. 10 is a top view of the applicator taken at line 10-10 at the lower end of Fig. 9.

10 Fig. 11 is a top view taken at line 11-11 at the lower end of Fig. 5.

Fig. 12 is a sectional view taken at line 12-12 at the lower end of Fig. 11.

15 Fig. 13 is an exterior view of the treater, showing the drive motor and its mounting platform, and including a portion of the structure of the elevator, and a truck.

Fig. 14 is a view, similar to Fig. 5, showing wipers for wiping the bowls.

#### Detailed Description

20 Attention is directed to Fig. 1 showing the seed treater identified 30, mounted in position in a grain elevator. The elevator has a second floor, indicated generally at 32, and other structural elements are shown. A floor structure itself 34, is indicated, in which the seed treater is directly mounted. The

seed treater is mounted at its top and it suspends from the floor structure, in position for a vehicle such as a truck 36, to drive into the elevator on the main floor, under the seed treater, to receive the grain from the latter. It is to be noted  
5 that the device is mounted only at one point, its top, as will be brought out in detail hereinbelow.

Fig. 1 shows instrumentalities for conveying seed to the device. These may include a conveyor 38, having a terminal chamber 40, with an outlet leading into the seed treater.

10 Further attention is given to this feature, as represented diagrammatically in Fig. 2, which shows a conveyor 38, with other instrumentalities 42, leading thereinto, such as belts, chutes, screws, etc. The particular instrumentalities utilized for carrying seed to the device may be any of various kinds. The  
15 seed treater 30, is cylindrical in shape with central axis 44 (Figs. 1,5) disposed vertically. It includes a stationary drum 44 forming a surrounding wall 46, which has an access door 47. In the description herein, the seed treater is referred to as oriented in that position, i.e., vertically.

20 Fig. 5 includes most of the interior items, and Fig. 14, which is similar to Fig. 5, additionally shows wipers for wiping the bowls, as described below.

The device has a flat, annular top closure plate 48, with a central inlet opening or feed hole 50, surrounded by a

cylindrical tube 52, and has a conical bottom closure plate 54, with a central discharge opening 56, forming a bottom bowl.

Fig. 4 shows the means for mounting the device on the ceiling, or the second floor. In this figure the second floor structure 34 is shown, and a hanger means 58 is provided for mounting the device directly on the floor structure. In the hanger means 58 is an opening 60 receiving grain from the outlet end of the conveyor 38 (Fig. 2) and directing it into the opening 50, in the device.

Attention is directed to Fig. 5, which is an axial sectional view of the entire device. In this view the cylindrical wall 46 is shown, having a surrounding outwardly directed transverse flange 60, at the top, and a similar transverse flange 62, at the bottom.

The top closure plate 48 shown in Fig. 4 is also shown in Fig. 5, this plate having a radially extended peripheral flat flange 64, detachably secured to the flange 60, and welded to the tube 52 around the feed hole 50.

The bottom closure plate 54 has a peripheral transverse flange 65, secured to the flange 62, for mounting the plate onto the cylindrical wall 46.

The seed treater includes a main shaft 68, extending nearly the height of the drum 44, being driven by a drive means at the bottom, referred to below. The shaft is mounted in an upper



bearing 70 and a lower bearing 72, the upper bearing 70 being mounted on an upper bearing support 74, and the lower bearing on and under a lower bearing support 76.

The upper bearing member 70 is shown in Figs. 7 and 8 and is fixedly mounted in the device. It includes a pair of spaced parallel arms 78, with curved end plates 80, the latter being detachably secured to the inner surface of the wall 46, and having a central plate 82, on which the bearing 70 is directly mounted.

Mounted in the support 74, are tubes 84, arranged oppositely and on a common diameter for conveying liquid chemicals into the device. These tubes lead through the drum and under the bearing plate 82 and empty downwardly into the drum. The outer ends of the tubes 84 lead through the end plates 80, and the surrounding wall 46, through an exterior fitting 88, for attachment to lead-in lines 89 carrying the chemicals to the device.

Mounted on the upper end of the shaft 68 above the bearing support 74 is a rotary spreader 90 (Fig. 5), also shown in Fig.

3. This spreader rotates with the shaft and includes a bottom plate 92, of conical shape, and vertical blades 94 opening radially outwardly, following the slope of the bottom plates, i.e., downwardly. The bottom plate and blades have a central opening 96, for receiving the upper bearing 70.

Mounted on the shaft 68, below the bearing support 74, is an applicator 100 (Figs. 9 and 10). This applicator includes a central hub 102, secured to the shaft, and a bottom plate 101, and vertical radial blades 106. This applicator is of lesser  
5 depth than the spreader 90.

In the steps of operation, in this phase, it is explained that the grain is introduced through the top opening 50 and it falls on the spreader 90, which throws the grain out against the surrounding wall 46. The liquid chemicals falling from the tubes  
10 84 are thrown outwardly by the applicator 100, also into engagement with the falling grain and the surrounding wall.

The thin mass of grain which was thrown out by the spreader 90, flows down along the wall, and mixes with the chemicals and as it reaches the level of the applicator, the wet mixture then  
15 flows into an upper bowl 104 which is fixadly mounted in the drum. This bowl includes a surrounding annular imperforate wall 107, tapering downwardly to a central discharge outlet opening 108, and at its upper end is a cylindrical flange 110, by which it is mounted on the inner surface of the surrounding wall.

20 Mounted below the upper bowl 104, is an upper coater 112, which is generally similar to the spreader 90, but of different dimensions, being smaller in diameter than the latter. The coater includes a central hub 114, by which it is mounted on the

shaft 68 for rotation therewith. It includes bottom plates 116, and vertical radial blades 118 opening radially outwardly.

This upper coater 112, is positioned close to the upper bowl 104, and as the grain and fluid mixture flows down the bowl, it falls into the upper coater 112, and is again thrown out against the surrounding wall 46. This action produces a mixing effect, which is added to that of the spreader 90, and upper bowl 104.

Below the upper coater 112, is a central bowl 120, identical in construction with the upper bowl 104, and mounted in a similar manner in the drum. This bowl receives the mixture from the wall 46, in the area radially outwardly from the upper coater 112 and the mixture then flows through this central bowl and down through its bottom opening 122.

Below the central bowl 120, is a lower coater 124, which is identical in construction with the upper coater 112, and operable for throwing the mixture that falls into it from the central bowl 120, in outward direction against the surrounding wall. At this point the mixture as it engages the outer wall continues to flow down through the drum.

The lower bearing support 76, identified above, is constructed as a hogback. Figs. 11 and 12 show its detail construction. It includes a main structural member 125, made up of a pair of plates 126, disposed at an angle to each other and

together extending diametrically across the drum. It is disposed with the apex of the angle upwardly. At the ends are curved mounting plates 128, having apertures for detachably mounting on the surrounding wall as shown in Fig. 5. A central plate 130, is mounted across the lower edges of the plates 126, on which the lower bearing means 72 is secured.

The hogback 76, serves to divide the mass of grain descending as shown in Fig. 1, the blades 126, deflecting the grain mixture sideways, which falls into the bottom bowl 54, from which it flows through the central discharge opening 56.

Means is provided for facilitating flow of the mixture through the device. The mixture tends to become sticky due to the inherent stickiness of the chemicals, and also because of the mixture of dust and dirt with the chemicals. This produces what is actually a mud, retarding the flow of the mixture.

This mud accumulates most objectionally in the bowls 104, 120 and 54.

To overcome this problem three pairs of wipers 128, 129, 130 are provided as shown in Fig. 14. In each pair, the wipers are mutually identical, and arranged symmetrically, on a common diameter. The wipers in the different pairs differ in size and shape.

Each wiper 128 includes a small flat steel mounting piece 132 welded to the applicator, on the under surface of the latter

and at the periphery thereof, and a blade 133 extending down into the upper bowl. The blade is positioned at the periphery of the bowl. Its upper edge 135 is inclined upwardly in radial outward direction to a point 136 above the flange 110 of the bowl, engaging the wall of the drum at that point. Its radially outer edge 138 also engages the flange. The lower edge 139 of the blade engages the wall of the bowl down to a point 141, and its lower/inner edge 142 extends up to the mounting piece 132. The blade 133 is made of rubber belting material of known kind, and accordingly is relatively stiff and will yield upon engaging an obstacle.

The blades 133 are spaced apart, engaging the bowl only at the outer portion thereof, and leaving an empty space therebetween.

The wiper blades, in each pair, extend approximately three-fourths of the slant height of the sloped bottom, from the upper edge of the latter, leaving the lower one-fourth open.

The wipers, upon rotation with the shaft, wipe the bowl, and wipe the mixture and work it inwardly so as to position it directly over the bottom outlet opening. This action forms a dense column at the center which as a mass moves downwardly, overcoming the tendency of the accumulation of the mixture on the wall of the bowl.

In the case of the wipers 129, the mounting pieces 142 are secured to the upper coater 112 which is of lesser diameter than the applicator 100, and the blades are therefore radially longer than the blades in the wipers 128. The upper edged 143 is inclined upwardly and terminates at 145 at the upper edge of the flange 110.

The wiper 130 includes a central hub 146 mounted on the lower end of the shaft 68 to which mounting pieces 148 are welded.

The blades 149 engage the inner surface of the bottom bowl 54 at the upper part of the latter. Thus the three bowls are wiped of the mixture, producing faster and more efficient flow.

The hogback 76 leaves a zone 150 (Fig. 12), which is devoid of the grain mixture. A drive motor 151 (Fig. 13) is mounted on an exterior platform 152, and a drive belt 153 therefrom drives the central shaft 68 (see also Fig. 14). This belt extends through the void zone 150, and is thus protected from the falling grain mixture, but however, the grain mixture is enabled to fall freely without interruption over the top of the hogback 76. Diagonal braces 154 (Fig. 13), secured at their upper ends to the drum, provide support for the platform, and thus the drive motor, and this structure and support are part of the self-contained nature of the device.

It is desired that the grain and chemicals be mixed extremely thoroughly in the treater. In the present case, there are no chemicals mixed outside the treater. The chemical and grain mixing provided in the seed treater is extremely intense, and efficient. The spreader 90, it located directly under the top inlet opening 50 and receives all of the grain falling into the unit. The grain then is thrown out against the surrounding wall, as stated, and in this step the grain forms a thin mass on the wall. This mass of grain flows or slides down the wall, and at the next step, at the level of the agitator 100, is injected with chemicals. The purpose of the agitator is to throw the atomized fluid chemicals outwardly. The mixing of the grain continues, and the chemicals also mix with the grain at this stage, and progressing downwardly, the grain mixture with the chemicals flows into the bowl 104. The grain mixture then slides down the inclined surface of the bowl and exits through the central opening 108.

Each coater is of lesser diameter than the bottom opening in the bowl above it, but due to the inclination of each bowl, the mixture is directed inwardly, in falling, into the coater below the bowl.

In all of these actions, the grain is mixed and remixed, and the liquid chemicals are mixed therewith and simultaneously so. It is desired that the liquid chemicals thoroughly coat all

the surfaces of the individual kernels of the grain, and the repeated reversing in direction produces a sliding, turning and rubbing action between the kernels, thus completely distributing the chemicals around the total surfaces of the individual

5 kernels. In addition to vertical falling movement of the kernels of this action, there is a swirling effect due to the rotation in the various members. This swirling action takes place throughout, and any interruption of that swirling action is again reestablished in the repeated action of the coaters.

10 The swirling effect is shown to continue after the mixture leaves the unit, as shown in Fig. 13.

Fig. 13 also shows the fluid lines 89, leading from a supply of chemicals to the unit, and leading into the outlets 88 (Fig. 5) as referred to above.

15 The bottom closure plate 54, as shown well in Fig. 14, is tapered similarly to the bowls, 104, 120, confining the grain as it is being discharged, to a relatively narrow stream at the center.

A unit as described above, having a drum in the  
20 neighborhood of 40" in length and 24" in diameter, has a capacity for treating grain at the rate of about 1500+ bushels per hour or 45+ tons per hour. Any desired capacity may be accomplished by selectively changing the size of the machine. The drive motor 150 is sized to the unit.



The motor may be of fixed RPM, or of variable speed. One motor drives all the internal moving parts of the device.

End of Descriptive Specification

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Case 2

Seed Treater

Claims

1. A self-contained seed treater comprising,  
a drum having a surrounding wall and a top opening and a  
bottom opening,  
a rotatable shaft mounted in the drum on a vertical axis,  
a spreader mounted on the shaft adjacent the top of the  
drum, and adapted to receive seed flowing downwardly through the  
top opening, and operable for throwing the seed outwardly into  
engagement with the surrounding wall,  
an upper bowl below the spreader, and tapering downwardly  
and having a bottom opening, and being otherwise imperforate and  
secured to the surrounding wall without space between itself and  
the surrounding wall,  
whereby all the seed on the surrounding wall thrown from  
the spreader will flow into the upper bowl.

15 the construction of the seed treater being such as to  
enable the seed in the upper bowl to flow through the bottom  
opening in the upper bowl and through the bottom opening of the  
seed treater into a receptacle, and

the seed treater including power means for rotating the  
20 shaft surface.

2. A seed treater according to claim 1 wherein,

the drum has a top cover in which the top opening is  
formed, and

the drum includes a flange unit on the top cover having a  
central opening co-axial with the top opening of the drum and a  
flange element spaced axially from the top cover and extending  
transversely of the axis, for detachably securing it to an  
overhead supporting structure.

3. A seed treater according to claim 1 and including,

upper and lower first bearing means for supporting the  
shaft,

second means supporting the bearing means within the drum,

5 and

the second supporting means being operable for detachably mounting the second supporting means on the surrounding wall.

4. A seed treater according to claim 1, wherein,

the drum is cylindrical and the supporting means includes an upper protected bearing support between the spreader and the upper bowl,

5 the upper bearing support extends diametrically across the drum and includes spaced apart side bars positioned vertically on edge, and having end plated also positioned on edge by which the upper bearing support is detachably secured to the surrounding wall,

10 the upper bearing support also including a central horizontal plate secured to the side bars, and

the upper bearing means is detachably and fixedly mounted on the plate,

15 whereby relatively great space is provided outwardly of the side bars, and between the side bars radially outwardly beyond the central horizontal plate to enable the seed to flow freely downwardly through the drum.

5. A seed treater according to Claim 4 wherein,

the upper bearing support includes holes in its structures for receiving the outlet ends of the fluid flow hoses from the exterior leading to a position adjacent the shaft for conducting  
5 fluid into the drum to a position adjacent the shaft.

6. A seed treater according to claim 1 and including a rotary applicator between the spreader and the upper bowl,

the applicator is mounted on the shaft and rotatable therewith and positioned for receiving fluid from the terminal  
5 ends of the fluid flow hoses, and operable for throwing fluid that is placed thereon outwardly into engagement with the falling seed kernels on the wall of the drum.

7. A seed treater according to claim 5 and including

a rotary applicator mounted on the shaft and rotatable therewith, and

the rotary applicator is positioned between the upper  
5 bearing support and the upper bowl, and thereby positioned below the fluid line outlets for receiving thereon fluid introduced into the drum.

8. A seed treater according to claim 7 wherein,

each the spreader, applicator, and coaters, includes a bottom plate extending substantially its full area, and vertical blades extending upwardly from bottom plate.

9. A seed treater according to claim 1 and including,

an upper rotary coater below the upper bowl and secured to the shaft, and positioned for receiving seed and fluid from the upper bowl and operable for throwing seed and fluid outwardly against the wall of the drum.

10. A seed treater according to claim 9 and including,

a center bowl substantially identical with the upper bowl below the upper coater, and mounted in the drum similarly to the upper bowl.

11. A seed treater according to claim 10 and including,

a lower rotary coater substantially identical with the upper rotary coater and mounted below the lower bowl and mounted similarly to the upper rotary coater.

12. A seed treater according to claim 11 and including,

a hogback adjacent to the lower end of the drum and below  
all of the above instrumentalities and structures,

the hogback being constituted by a rigid elongated piece  
5 extending diametrically across the drum and secured at its ends  
to the surrounding wall, and

lower bearing means mounted on and under the hogback and  
supporting the shaft.

13. A seed treater according to claim 12 and including,

power means mounted on the exterior of the drum, and

power transmitting means operably connecting the power  
means and the shaft and extending into the drum and underlying  
5 the hog back throughout its extent to the shaft and thereby  
shielded by the hogback from grain falling through the drum.

14. A seed treater according to claim 1 wherein,

the drum includes a bottom closure element of downwardly  
directed cone shape, forming a bottom bowl, secured to the  
surrounding wall,

5 the bottom bowl includes the bottom opening positioned coaxially with the drum, and surrounding imperforate element positioned for receiving the grain falling through the drum.

15. A seed treater according to claim 1 and including,  
in addition to the upper bowl,  
a central bowl and a bottom bowl,  
all concentric with the axis and through all of which the  
seed mixture flows, and

the seed treater includes rotary wipers secured to the shaft and extending into the respective bowls, and operable in response to rotation of the shaft, for wiping the floor of the bowls.

16. Apparatus for treating seed, comprising,  
a cylindrical drum having top and bottom openings,  
the drum including means for mounting it on and below a floor in a building, and adapted to receive grains of different  
5 characteristics through the top opening, for mixing grains,  
the drum including means therewithin for mixing the grains in response to the fall of the grains through the drum, and



the apparatus including power means mounted on the drum for operating the mixing means.

17. Apparatus according to claim 16 and including,

conduit means leading from the exterior into the interior of the drum for conducting liquid chemicals into the drum for mixing with the grains in the drum.

18. A method of treating seeds, adapted for use in an elevator which includes a building with an elevated floor having a supply opening therethrough and a space below the floor for accommodating vehicles for receiving the seeds, comprising,

providing seeds to be mixed on the elevated floor,

providing a self-contained mixing unit having a top opening and a bottom opening for flow of seeds therethrough and through the mixing unit, and mixing the seeds as the seeds flow through the mixing unit.

19. A method according to Claim 18 and including the step,

introducing fluid into the mixing unit with the introduction of the seeds, and mixing the seeds and fluid.

20. A method according to Claim 19 for use in such elevator that includes a driveway in said space in the building for movement of vehicles on the driveway, and including the step,

introducing mixed grain from the mixing unit on the

5 driveway and moving the vehicle from the building.

End of Claims

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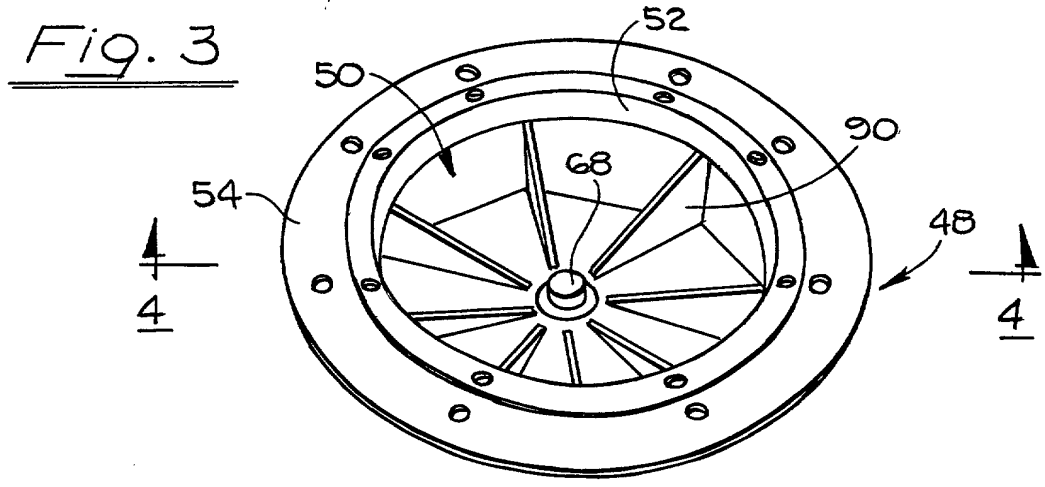
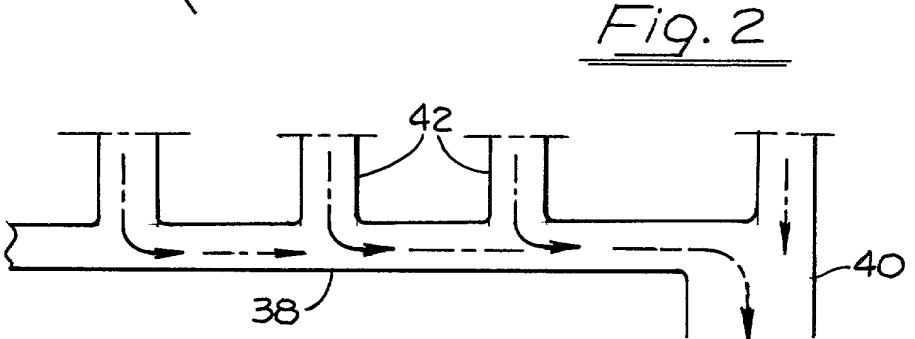
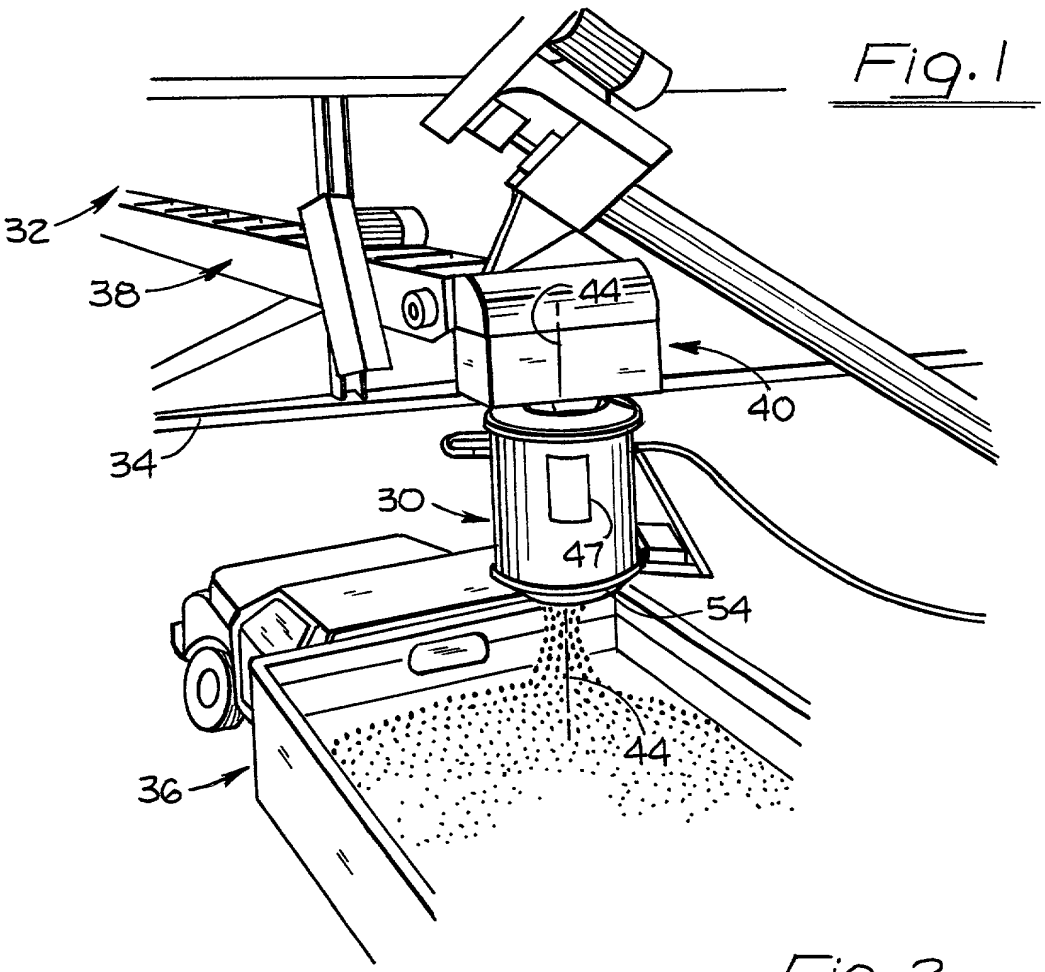
Case 2

### Seed Treater

#### Abstract of the Disclosure

A drum for hanging from the ceiling constituting the floor of the second story of a grain elevator. The device is self-contained, and has top closure elements with a central feedhole, and a bottom closure element with a central discharge hole. It includes a rotary spreader and coaters, and an applicator, for spreading grains and mixing them, and for mixing fluid chemicals with the grains. Repeated mixing steps are performed. The grains are introduced into it from the second floor. It can receive the grains and chemicals from various sources including chutes from hopper bins, belts, and screws.

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Fig. 4

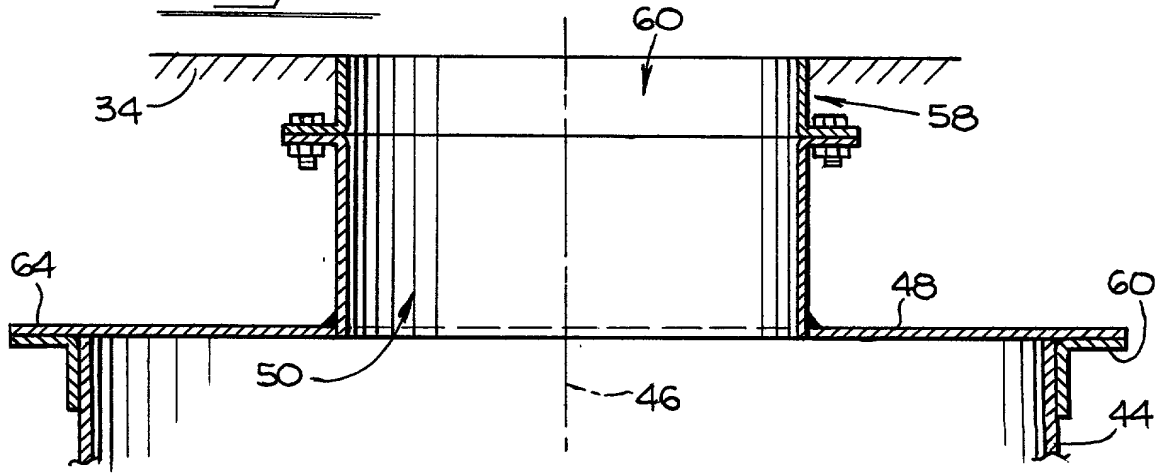


Fig. 6

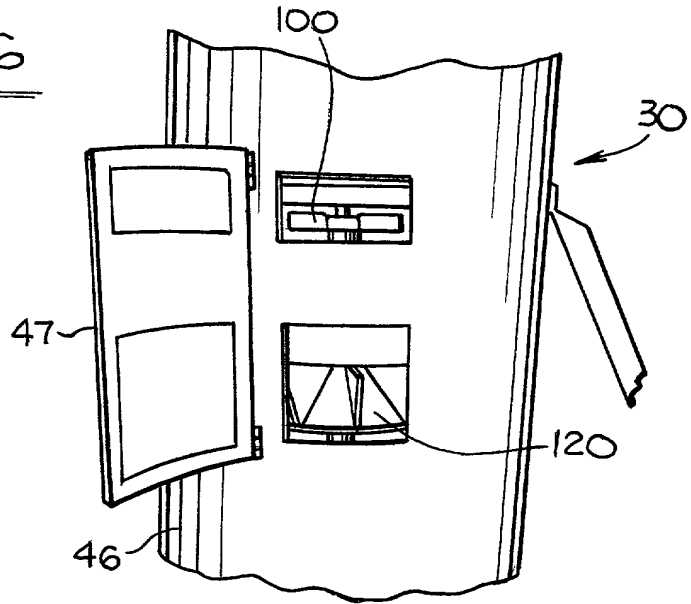


Fig. 7

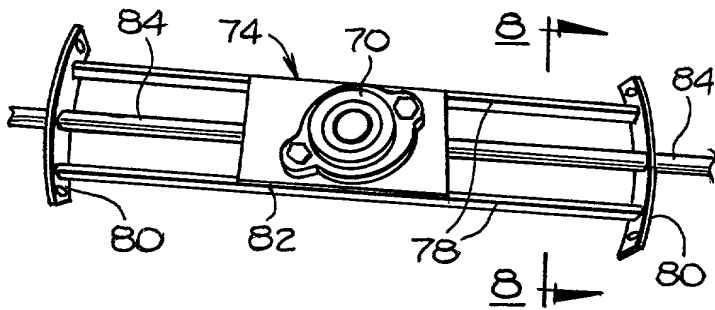
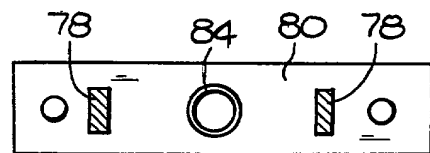
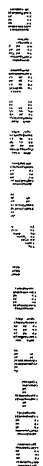


Fig. 8



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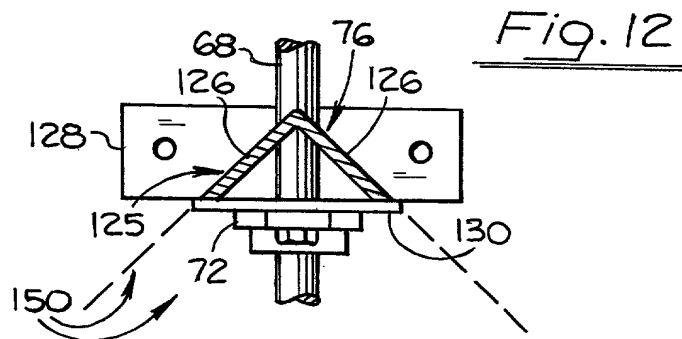
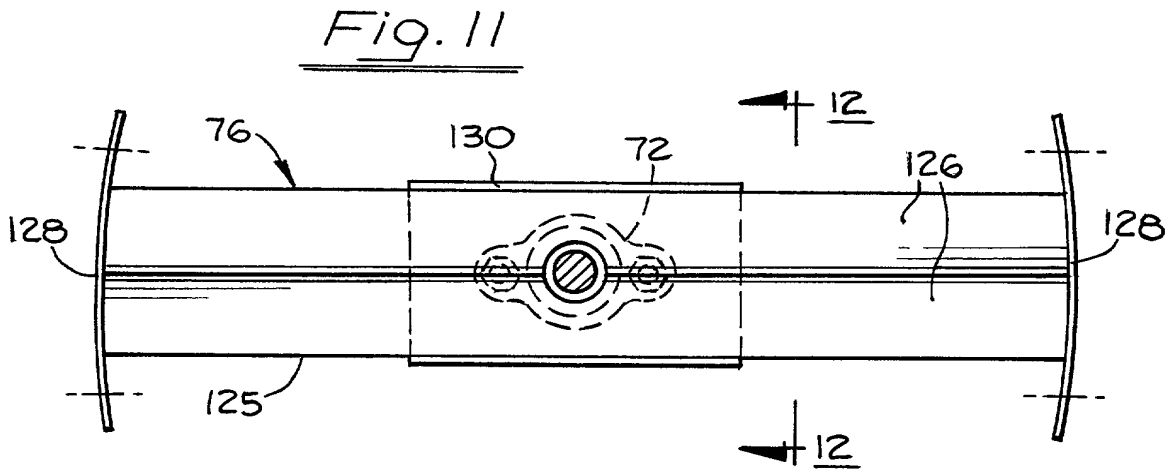
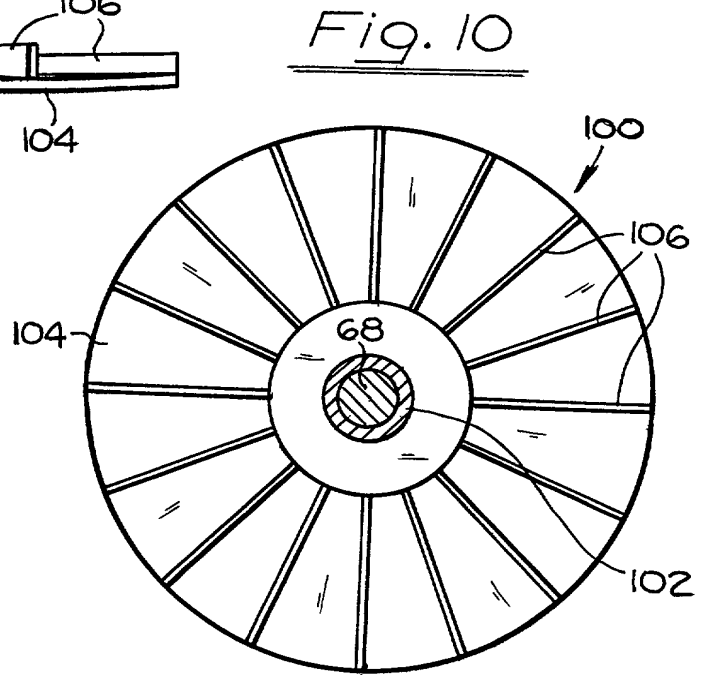
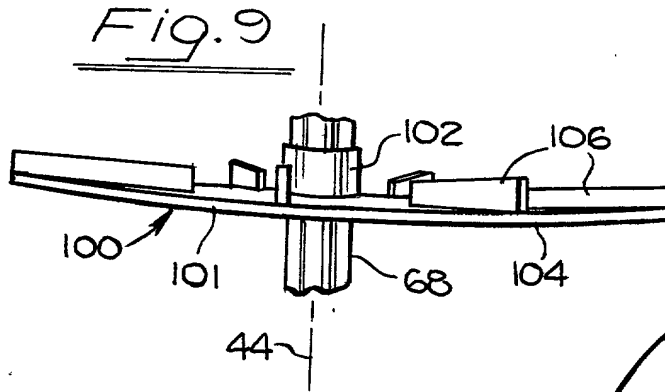
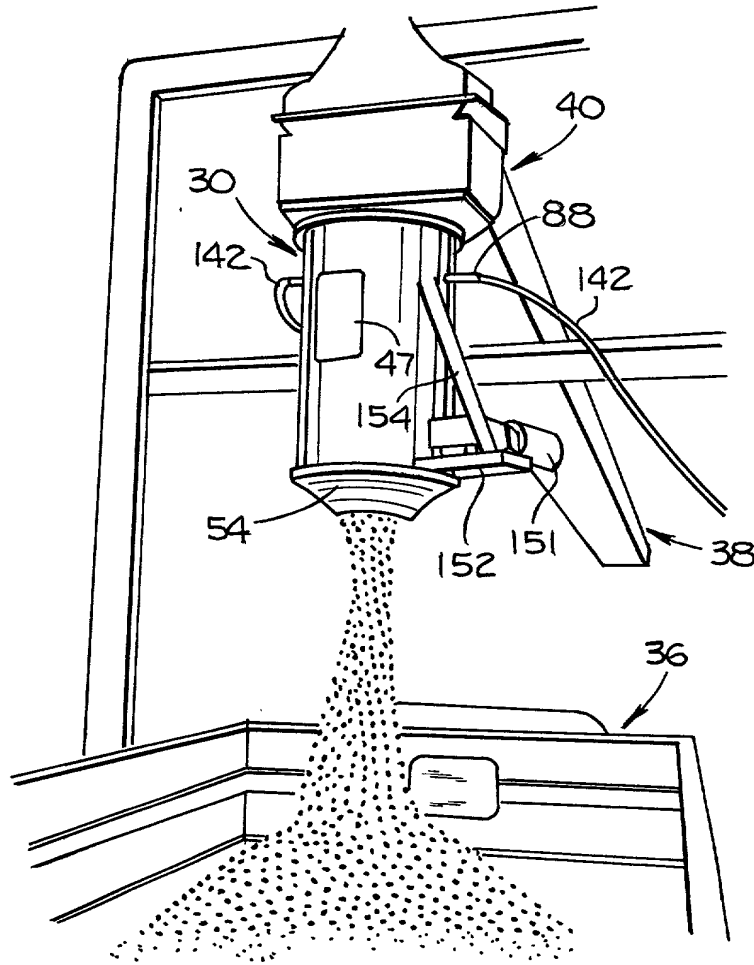


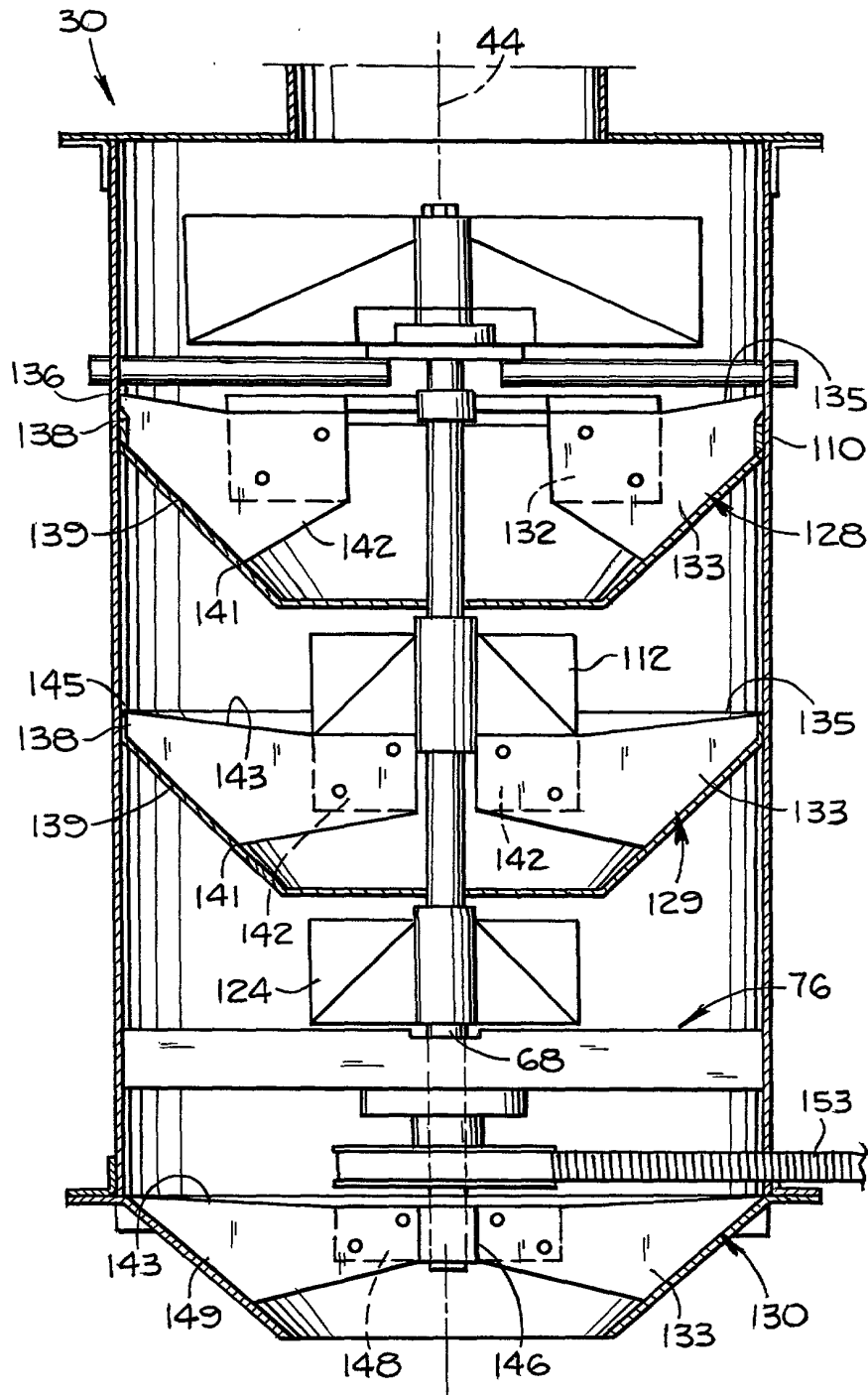
Fig. 13



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Fig. 14



004180" 27089960

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## DECLARATION

☒ Declaration Submitted with Initial Filing OR ☐ Declaration Submitted after Initial Filing

Attorney Docket Number

Case 1

First Named Inventor

Jerrel Lee Whited

### COMPLETE IF KNOWN

Application Number

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Filing Date

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Group Art Unit

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Examiner Name

---

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Seed Treater

the specification of which

(Title of the Invention)

☒ is attached hereto

OR

☐ was filed on (MM/DD/YYYY)

as United States Application Number or PCT International

Application Number

and was amended on (MM/DD/YYYY)

(if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37 Code of Federal Regulations, §.56.

I hereby claim foreign priority benefits under Title 35, United States Code §119 (a)-(d) or §365(b) of any foreign application(s) for patent or inventor's certificate, or §365 (a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Copy Attached?	
				YES	NO
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

☐ Additional foreign application numbers are listed on a supplemental priority sheet attached hereto:

I hereby claim the benefit under Title 35, United States Code §119(e) of any United States provisional application(s) listed below.

Application Number(s)	Filing Date (MM/DD/YYYY)	<input type="checkbox"/> Additional provisional application numbers are listed on a supplemental priority sheet attached hereto.

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# DECLARATION

Page 2

I hereby claim the benefit under Title 35, United States Code §120 of any United States application(s), or §365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code §112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. Parent Application Number	PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number (if applicable)

☐ Additional U.S. or PCT international application numbers are listed on a supplemental priority sheet attached hereto.

As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

Firm Name Paul H. Gallagher Payor Number (if applicable)

Name	Registration Number	Name	Registration Number
Paul H. Gallagher	14,979		

☐ Additional attorney(s) and/or agent(s) named on a supplemental sheet attached hereto.

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Name of Sole or First Inventor: ☐ A petition has been filed for this unsigned inventor

Given Name Jerrel Middle Initial L. Family Name Whited Suffix

Inventor's Signature Jerrel Lee Whited Date 7/25/2000

RESIDENCE: City Walla Walla State WA Country USA Citizenship USA

POST OFFICE ADDRESS 2041 Crawford Drive

City Walla Walla State WA Zip 99362 Country USA Applicant Authority

☐ Additional inventors are being named on supplemental sheet(s) attached hereto